



ABSTRACT

Model-based Design of Cyber-Physical Systems: Lessons Learned

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CPS design flows span physical and computational domains and incorporate software synthesis for cyber and manufacturability concerns for physical components. Heterogeneity is the norm as well as the main challenge: components and systems are modeled using multiple physical, logical, functional and non-functional modeling aspects.

Traditional design flows use the separation of concern principle to decompose the overall design problem into manageable problem sizes. However, the fundamental goal of model-based design - to move toward a correct-by-construction design technology - requires modeling and analyzing cross-domain interactions among physical and cyber domains and demands understanding the effects of heterogeneous abstraction layers in the design flow.

The talk will summarize progress and lessons learned during the development of a design tool chain for real-life applications in vehicle application domains.